

surface only varies in the number of white spots on the black border. From what we now know of the seasonal dimorphism of white butterflies, it is almost certain that the earthy-brown and whity-brown types are dry-season forms and the yellow and white types are wet-season forms.

In like manner the two males of *P. perimale*, which Wallace regarded as an aberrantly variable species, represent the ordinary dry- and wet-season forms, of the first of which Donovan's type is typical. *P. perimale*, however, is more nearly allied to my *Huphina terranea*, of which we now possess both types from Lifu, than to *Huphina lanassa*.

The synonymy of *H. lanassa* corrected to date will be as follows:—

*Huphina lanassa*.

♀. *Pieris lanassa*, Boisduval, Sp. Gén. Léop. i. p. 477 (1836).

♂ ♀. *Pieris nabis*, Lucas, Rev. et Mag. de Zool. 1852, p. 326.

♀. *Pieris perithea*, Felder, Reise der Nov., Lep. ii. p. 169 (1865).

Australia, Baudin Island, Fiji.

Dry-season form.

♂. *Pieris periclea*, Felder, Reise der Nov., Lep. ii. p. 169 (1865).

♂. *Pieris narses*, Wallace, Trans. Ent. Soc. ser. 3, vol. iv. p. 333, pl. vi. fig. 3 (1867); Herrich-Schäffer, Stett. ent. Zeit. 1869, p. 76, pl. i. fig. 4; Auss. Schmett., App. p. 3, pl. i. fig. 103 (1869), as *P. periclea*.

Australia, Baudin Island.

In the wet-season form there are all gradations between the extremes of yellow and white, whilst *P. periclea* is a transitional form between the latter and *P. narses*; therefore, if the facts proved as regards the seasonal changes in colouring in other genera of *Pierinæ* should be found not to be true of *Huphina*, the above forms would still have to be regarded as variations of one species.

XXXIV.—On the Species of the South-African Scorpion *Opisthophthalmus* contained in the Collection of the British Museum. By R. I. POCOCK.

[Plate X.]

THANKS to Prof. Kraepelin's recent examination and comparison of most of the types of *Opisthophthalmus* and his  
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determination of their age, sex, and specific identity \*, I have found it possible, with some degree, I hope, of exactness, to identify the rich material of this genus contained in the collection of the British Museum. I have added some notes respecting the various species, which, I trust, may be of service in their determination; but especially do I wish to draw attention to the fact that many of the specimens have been obtained of late years, and are consequently furnished with trustworthy and *exact localities*—an item of information which has been so much ignored in connexion with these animals, but which will ultimately prove, I think, to be of the first importance. For instance, when discussing *O. capensis*, apparently the commonest species of all in most collections, Kraepelin says that its distribution seems to be exclusively Cape Colony (Capland). This, no doubt, is perfectly true; but I cannot lay my hands upon a particle of evidence that the species ranges *throughout* Cape Colony. It appears, in fact, so far as I can determine at present, to be restricted to a relatively narrow but undetermined area around Cape Town and the Cape of Good Hope; and there is no evidence known to me that any other species inhabits the same spot. That many more species than at present are known from specimens ticketed vaguely “S. Africa or Cape Colony” will be found also to have a restricted range is, I think, probable, though, on the other hand, there are some—*O. carinatus*, for example—that cover a wide area in distribution.

*Opisthophthalmus capensis* (Herbst).

*Scorpio capensis*, Herbst, Naturg. d. Scorpione, p. 62, pl. v. fig. 2 (1800), ♀.

*Opisthophthalmus pilosus*, C. Koch, Die Arachn. iv. p. 91, fig. 309 (1838), ♂.

*Opisthophthalmus maxillosus*, id. ibid. (young, teste Kraep.).

Of this species the British Museum has twenty-three examples of all ages and both sexes. It is evident that Cape Town is the head-quarters of this species. How far it extends to the north and east of this point I have no means of judging. Of the above-mentioned examples no fewer than fourteen are ticketed Cape Town, received from R. Trimen, R. C. Wroughton, Rev. G. H. R. Fiske, and H. A. Spencer; while all the rest that are labelled came from the Cape of Good Hope. I cannot understand Kraepelin's reasons for

\* See “Revision der Scorpione.—II. Scorpionidae und Bothriuridae,” Jahrb. Hamb. Anstalten, xi. 1, pp. 77–108.

separating this species from what he calls *pilosus*, for the characters he assigns to the latter are merely those of the male of *capensis*, in which usually all the abdominal sterna with the exception sometimes of the first are granular, while the palpi are very richly hairy; yet Kraepelin speaks of the two sexes, both of *pilosus* and *capensis*, as if he were familiar with them. I cannot, however, avoid the conclusion that he has in some way confused the sexual characters; and this opinion is strengthened by the fact that he considers the figure of the type published by Herbst to represent a male. It appears, however, to me to be without doubt a female, as both Thorell and Simon have affirmed. The male of *capensis* has a slender hand, and the first and second caudal segments taken together are equal to the length of the carapace; while Herbst's figure, with its broad hands and short tail, agrees exactly with all the adult females in this collection.

*Opisthophthalmus palli[di]pes*, C. Koch.

*Opisthophthalmus pallipes*, C. Koch, Die Arachniden, x. p. 3, fig. 757, ♂;  
Thorell, Etudes Scorpiol. p. 227.

A single female from the Concordia Copper Mine, Ookiep, about 70 miles from the coast in Little Namaqualand, to the south of the Orange River (collected by W. H. Clark), gives the following measurements in millimetres:—Total length 115; length of carapace 16·5, of tail 59, of hand-back 10·5, of movable digit 17·5; width of hand 13·7.

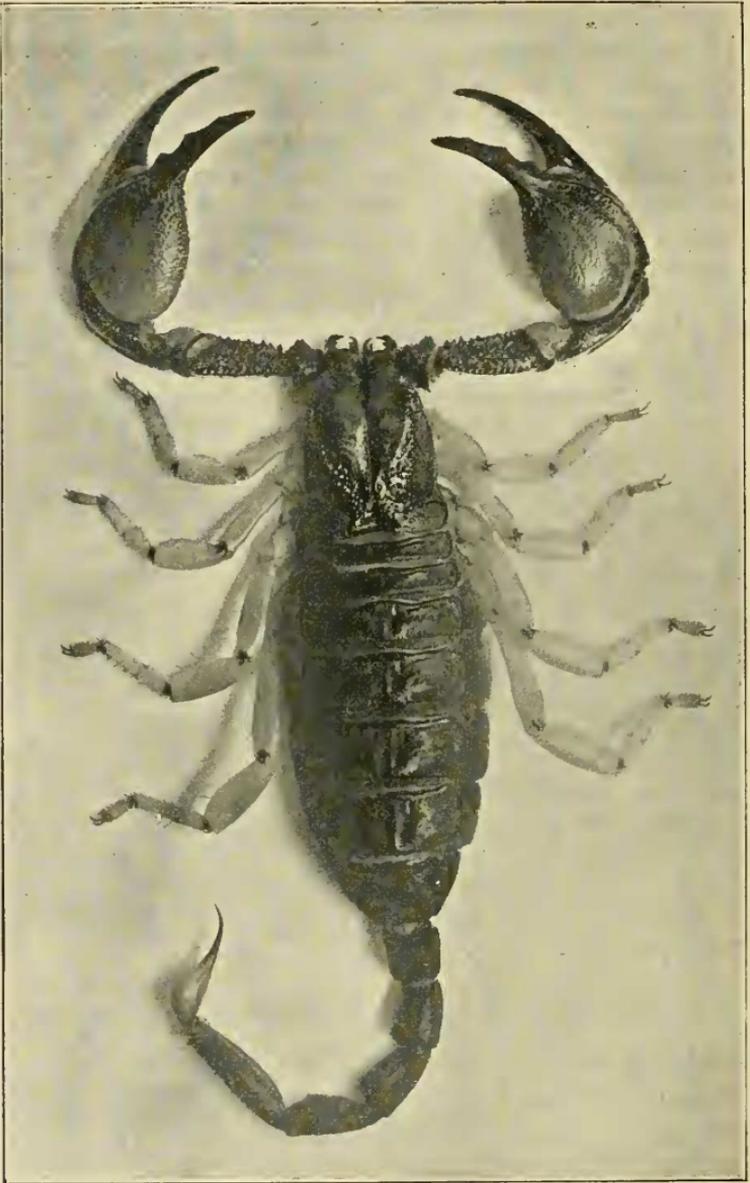
The accompanying figure of this species (p. 236) is taken from a photograph by Dr. Howard of a female specimen procured near the copper mines, Namaqualand, and sent to Mr. Lydekker, by whose kind permission I here reproduce it. The interocular area of the carapace and the hand, which are blackish in the photograph, are reddish yellow in the actual specimen.

*Opisthophthalmus carinatus* (Peters).

*Scorpio carinatus*, Peters, Mon. Ak. Wiss. Berl. 1861, p. 515.

Two male examples, Otjimbinque (Keyserling collection) and Umfuli River, Mashunaland (*G. A. K. Marshall*). The one from Otjimbinque presents the discoloration and softness of exoskeleton characteristic of recently moulted Arthropods; the one from Umfuli, on the contrary, is full-coloured, the extremity of the tail, the legs, and hands being pale yellow, while the upper surface of the trunk is greenish brown, the

humerus and brachium of the chelæ pale yellowish red, with strong deep green crests, and the fingers deep green. This



*Opisthophthalmus pallidipes*, C. Koch.

example presents one of those types of coloration which is so rare in this genus, namely, although there is a strong con-

trast in colour between the legs (and hands) and the trunk, the tint of the interocular area of the carapace resembles that of the trunk. In almost every other case it is the same pale colour as the hands and legs.

This specimen gives the following measurements in millimetres:—Total length 98; length of tail 53, of carapace 14·5; distance of eyes from front border 8·6. There are 23 pectinal teeth on each side, and the sterna of the abdomen are strongly corrugated with deep transverse grooves, which are much more strongly marked than in the specimen from Otjimbingue.

Another interesting point about this species is that in the subcentral position of its median eyes and the deepness of the notch in the anterior border of the carapace it approaches the genus *Scorpio*—the so-called Black or Rock Scorpion, which ranges in Africa from Senegambia to the Congo on the west, and from Abyssinia and Somaliland to Lake Nyasa (Zomba) on the east, but is replaced in S. Africa by *Opisthophthalmus*. On account of these features this species was by Karsch regarded as a distinct genus, which he named *Petroicus* (a preoccupied name, which was changed by myself into *Æcopetrus*). But since the exact position of the eyes is a character liable to considerable specific variation, it is, perhaps, better to hold with Kraepelin that *carinatus* is merely a well-marked species of *Opisthophthalmus*.

*Opisthophthalmus Wahlbergi* (Thor.).

*Microphonus Wahlbergi*, Thorell, *op. cit.* p. 222.

One female example in Keyserling's collection from Otjimbingue, about 100 miles up the river inland from Walfisch Bay, in Damaraland, gives the following measurements in millimetres:—Total length 103; length of tail 46, of carapace 14; distance of eyes from posterior border 6; length of hand-back 6, of movable digit 13; width of hand 9·6. Pectinal teeth 17.

*Opisthophthalmus austerus*, Karsch.  
(Pl. X. fig. 4.)

*Opisthophthalmus austerus*, Karsch, Mitth. Münch. ent. Ver. 1879;  
Kraepelin, *loc. cit.* p. 94.

Two male examples ticketed "S. Africa, near the Tropic of Capricorn" (Methuen's Expedition). Recorded by Kraepelin from Cape Colony and Griqualand.

One of them gives the following measurements in millimetres:—Total length 87; length of carapace 13, of tail 52, of hand-back 9·5, of movable digit 21; width of hand 8. Both specimens have 22 pectinal teeth on each side, and the colour is a uniform reddish brown, the crest on the chelæ being black.

*Opisthophthalmus macer*, Thorell.  
(Pl. X. fig. 5.)

*Opisthophthalmus macer*, Thorell, *op. cit.* p. 236.

A single male example from Zulu country, S. Africa (*G. F. Angas*), giving the following measurements:—Total length 86; length of carapace 12, of tail 51; width of hand 9; length of hand-back 6·5, of movable digit 16·5. There are 16 pectinal teeth on each side. The chelæ are testaceous, except for the black crests and granules and digits, and the maxillary processes of the first and second legs are deep black.

*Opisthophthalmus latimanus*, C. Koch.

*Opisthophthalmus latimanus*, C. Koch, *Die Arachn.* viii. p. 65.

Two female examples from Murchison Range, Transvaal (*C. R. Jones*). The largest of these measures in millimetres as follows:—Total length 99; length of carapace 16·5, of eyes from posterior margin 5; length of tail 48·5, of hand-back 9, of movable digit 16; width of hand 13.

Both specimens possess 15 pectinal teeth on each side, and the colour, like that of *O. austerus*, is a reddish brown, paler on the legs, hands, and anterior region of carapace.

*Opisthophthalmus calvus*, L. Koch.

*Opisthophthalmus calvus*, L. Koch, *Verh. z.-b. Wien*, xvii. p. 233 (1867).

The single female example that I have seen of this species is ticketed "S. Africa, Dr. Smith." No nearer locality is known for it.

The measurements in millimetres of this specimen are as follows:—Total length 66; length of tail 35, of carapace 12·5, of hand-back 6·5, of movable finger 11·5; width of hand 10.

*Opisthophthalmus glabrifrons*, Pet.

*Opisthophthalmus glabrifrons*, Pet. *Mon. Berl. Ak.* 1861, p. 514.

*Opisthophthalmus leviceps*, Thorell, *op. cit.* p. 228 (teste Kraepelin).

The localities so far known for this species are Tette on the Zambesi and Caffraria (!) (*Wahlberg Coll.*). The British Museum has examples from Tette (*Keyserling Coll.*), Lake Nyasa, ? southern shore (*Universities Mission, Capt. Maclear and Mr. Bellingham*), and from Mashunaland (Salisbury, 5000 feet, Umfuli River, 1200 feet: *G. A. K. Marshall*), making a total of ten specimens (males, females, and young).

The pectinal teeth vary in number as follows:—

Specimens from Nyasa: ♀, 10-10, 11-11; ♂, 12-12, 13-13, 13-13.

Specimens from Tette: ? young ♀, 11-11.

Specimens from Salisbury: ♀, 10-12, 13-13; ♂ (young), 16.

Specimens from Umfuli: ♂ (adult), 16-18.

According to Kraepelin the pectinal teeth in the males that he saw were 18-19, while Peters gives 23 for this sex, a number which is nearly double that of one of the males from Nyasa.

Another feature which is, according to Kraepelin, characteristic of this species is the distinctness in the female of the upper crest on the anterior surface of the humerus; but it is not distinctly defined in any of the females examined by me except in the one from Tette. Moreover, it is only in the young example from Tette and in one from Salisbury that the interocular area of the carapace is perfectly smooth. In all the other specimens it is in both sexes distinctly though finely granular in front; and in one of the females from Umfuli the first dorsal plate is finely granular at the sides. I have very little doubt, however, that all the specimens under discussion are conspecific.

### *Opisthophthalmus pugnax*, Thorell.

*Opisthophthalmus pugnax*, Thorell, *op. cit.* p. 232, ♂.

*Opisthophthalmus curtus*, *id. ibid.* p. 234, ♀ (teste Kraepelin).

Of this species, the synonymy of which I adopt from Kraepelin, the Museum has only four examples in alcohol, *i. e.* one adult female from Durban (*Capt. Munn*), two young males from Basutoland (*R. C. Wroughton*), and one adult male from King William's Town. The pectinal teeth in these examples are as follows:—♀ from Durban, 13-14; ♂ from King William's Town, 17-18; ♂ from Basutoland, 12-12, 13-13—whereas, according to Kraepelin, they are 15-15 in a male and 10-12 in the females.

Although this species is nearly allied to *O. glabrifrons*, it may be distinguished, as Kraepelin has pointed out, by its more coarsely and thickly granular terga, by the ornamentation of the hand, which is less granular and composed rather of low anastomosing tubercles, by the constancy of the occurrence of either one or two spines external to the series running along the lower surface of the third and fourth tarsi. In the male, too, the interocular area of the carapace is finely granular throughout and the keels on the hand are stronger. The colour, too, is on the whole darker, and in the specimens that I have seen the maxillary processes of the first and second pairs of legs, as well as the tip of the sternum, are black, while these same skeletal pieces in *glabrifrons* are uniformly pale.

*Opisthophthalmus granifrons*, sp. n.  
(Pl. X. figs. 1-1 b.)

No. 1, type (♀, dry specimen).—*Colour* mostly ochre-yellow; postero-lateral portion of carapace darker than the interocular area; mandibles black, granules forming the crests on the chelæ also black; maxillæ of the first and second legs lightly infuscate at the tips.

*Carapace* considerably longer than wide, as long as the first and second caudal segment and half the third; its interocular area coarsely granular in its anterior half, nearly smooth behind; sides of the carapace coarsely granular, especially on the edge bordering the interocular area; the median eyes very far back, less than a quarter of the length of the carapace from the posterior border; the median groove distinctly forked in front.

*Terga* granular at the sides, the posterior ones becoming gradually more and more granular along the hind border, the seventh granular throughout; the third to the sixth with a smooth longitudinal ridge, the seventh with a low median elevation, but showing scarcely a trace of lateral crests.

*Sterna* smooth and polished, the last with a few low granules in the middle of its area.

*Tail* of medium length, slender; the upper crests of segments 2 to 4 ending in an enlarged spiniform granule; the inferior median keels practically obsolete upon segments 1 to 3, though just visible on 2 and 3, weakly granular on the fourth; the infero-lateral keels obsolete on the first, which is polished and scarcely granular below; these keels distinct on the third and fourth and marked with black pigment. Vesicle and fifth segment as in *O. capensis*.

*Chelæ*.—All the crests on the humerus coarsely granular, the upperside of the segment sparsely granular, its anterior edge strong and granular; the upper ridge on the brachium coarsely granular; hands convex above and thickly covered with low round granules; the keels weak, the finger-keel consisting merely of a row of black granules, the secondary keels also weak, though defined with black lines; the upper keel of the hand-back distinctly granular; hands wide, with strongly convex denticulated inner edge.

*Legs* with lower edge of anterior femora denticulate; tarsi of fourth leg with a single row of spines below, of third with a single anterior or external spine as well; the side-lobes longer than the superior median process.

*Genital operculum* heart-shaped, as long as broad.

*Pectines* with 14 teeth; the basal intermediate lamella long, as in *O. Wahlbergi*. (Pl. X. fig. 1 a.)

*Measurements in millimetres*.—Total length (abdomen contracted) 79; length of carapace 13·5; distance of eyes from anterior edge 10·5; width of carapace 12; length of tail 42; width of hand 10; length of hand-back 8, of movable finger 11·5.

*Loc.* "The Cape" (*Keyserling Collection*).

No. 2, ♂.—A specimen (also dry) that I believe to be the male of this species presents the following differential characters:—

The *carapace* only slightly exceeds the first two caudal segments in length; the side-edges of the interocular area defined by strong granules.

*Terga* more thickly covered with granules.

The first *abdominal sternite* is smooth, the second granular posteriorly and laterally, the third more granular than the second and the fourth than the third, the fifth entirely covered with squamiform granules, as also is the lower surface of the first caudal segment. Lower surface of second and third caudal segments sparsely granular and weakly keeled.

*Hands* much narrower than in female (*cf.* measurements), but the granular crests rather more strongly expressed.

(*Pectines* absent.)

Two external spines on lower surface of tarsus of third leg.

*Measurements in millimetres*.—Total length 108; length of carapace 15, width 13; distance of eyes from front margin 11; length of tail 62; width of hand 9; length of hand-back 8·5, of movable digit 15·5.

*Loc.* S. Africa (*Dr. Smith*).

No. 3 (young ♂ in alcohol).—The *interocular area* smoother than in the other two, especially in its posterior half, where it is not granular.

*Terga* nearly smooth, only finely granular at the sides and posteriorly.

*Sterna* and *tail* as in the female.

*Palpi* as in the female, but hand much narrower (*cf.* measurements).

*Pectines* as in the female, with 16–18 teeth.

*Genital operculum* as in male, *i. e.* normal and completely divided.

*Tarsi* not furnished below with an anterior spine.

*Measurements in millimetres.*—Total length 73; length of carapace 11·2, width 9·8; distance of eyes from anterior border 8; length of tail 36; width of hand 7; length of hand-back 6, of movable digit 8·5.

*Loc.* Concordia Copper Mine, Ookiep, in Little Namaqualand (*W. H. Clark*).

I believe the three examples that I have described above are referable to the same species, since they agree sufficiently well to permit the supposition that their differential characters are merely due to differences of age and sex.

According to Prof. Kraepelin's recent revision of the species of *Opisthophthalmus*, this new form falls into the same section as that containing *capensis*, *pilosus*, and *pictus*. From the latter, which is unknown to me, *granifrons* certainly differs in colouring as well as in having the interocular area of the carapace granular instead of smooth. From *capensis* and *pilosus*, *granifrons* may be recognized by having the interocular area more granular, the hands more granular, and the inner half of the upper surface much more strongly convex, the finger-keel weaker and strongly granular, and the crest bounding the upperside of the hand-back and the one on the upperside of the brachium also strongly granular instead of smooth. Moreover, in the female of *capensis* the proximal intermediate lamella of the pectines is not elongated. Some points connected with colour are also noticeable. In *capensis* the crests on the chelæ, especially those on the humerus, are much more strongly blackened and the maxillary processes of the first and second pairs of walking-legs are wholly fuscous.

*O. granifrons* also seems to be readily distinguishable from the two forms characterized by Thorell and Simon respectively as *latro* and *Chaperi*, which Prof. Kraepelin assigns to

*pilosus*. In *O. Chaperi*, for example, the *humerus* and *brachium* of the chela are black, the interocular area is smooth and punctured and only sparsely granular, and the hand is flat and nearly smooth above.

*Opisthophthalmus nitidiceps*, sp. n.

(Pl. X. figs. 2, 2 a.)

♀ (in alcohol).—*Colour*. Carapace dark at the sides, pale on the interocular area; abdomen olive-brown, darker above than below; mandibles brown at the base, deep olive-green distally; chelæ, legs, coxæ, and tail clear reddish yellow, the fingers of the chelæ and the crests on the hand being dark brown.

*Carapace* as long as wide, as long as the first two caudal segments and half the third; median eyes two thirds of the length of the carapace from the anterior end; interocular area entirely smooth, sparsely punctured, the median sulcus deep in front, but not bifurcating; sides of the carapace weakly granular, with no oblique ridge of granules running forward from the median to the lateral eyes.

*Tergites* smooth in the middle, finely granular at the sides, the posterior edge rugose; the last granular throughout.

*Sterna* smooth and polished, the last feebly granular.

*Tail* with the lower surface of the first segment weakly granular; the inferior keels on all the segments distinct, but not coarsely granular; the superior keels on the second, third, and fourth posteriorly strongly denticulate.

*Vesicle* distinctly granular.

*Chelæ* large, *humerus* with its four crests strong and granular, the front surface coarsely granular, the upper with only a few large granules; *brachium* with its upper crest crenulate; *hand* large, its upper surface convex and closely covered with smooth, low, irregular-shaped, sometimes anastomosing tubercles, its inner edge weakly denticulate, the secondary keels obsolete, the finger-keel moderately large and entire, the keel defining the hand-back above finely crenulate.

*Tarsi* of third and fourth legs with two anterior spines in addition to the four on the lobe; lobes much longer than upper process; second protarsal segment of first three pairs of legs externally spined, as in *O. opinatus*.

*Genital operculum* much wider than long.

*Pectines* with long internal basal sclerite armed with 12 or 13 teeth. (Pl. X. fig. 2 a.)

*Measurements in millimetres.* — Total length 81; length and width of carapace 13; distance of eyes from front border 8·5; width of hand 12·2; length of hand-back 7·5, of movable finger 13·5.

*Loc.* Port Elizabeth, Algoa Bay (*J. M. Leslie*).

Resembling *O. opinatus*, Sim., and *Wahlbergi*, Thor., in having the vesicle granular, but certainly differing from both in having the eyes some distance behind the middle of the carapace, the last abdominal sternite granular, a smaller number of pectinal teeth, &c.; but of the two it appears to be much nearer to *O. opinatus*, which it resembles in the armature of its feet.

*Opisthophthalmus breviceps*, sp. n.  
(Pl. X. figs. 3, 3 a.)

*Colour* of trunk above a uniform deep reddish brown; carapace the same colour, the interocular area being only a little lighter in the middle and not sharply contrasted with the colour of the rest of the plate; tail and under surface a little paler than the upper surface of trunk; legs pale reddish brown; chelæ yellowish red, with the crests heavily blackened; fingers black; the upper surface of the hand entirely yellowish red, the colour showing up rather strongly against the generally dingy tint of the trunk; coxæ uniformly reddish brown.

*Carapace* short, as wide as long, distinctly shorter than the first two segments of the tail, equalling in length the fifth segment of the tail; ocular tubercle one third of the length of the carapace from the posterior border; finely granular at the sides, without any crests of coarse granules defining laterally the interocular area, which is shining and finely punctured, but also, at least in one specimen, very finely and sparsely granular; median sulcus undivided.

*Terga* exceedingly finely granular (shagreened) throughout, the median crest almost absent, but defined by a depression on each side; the seventh coarsely granular, with two abbreviated crests on each side.

*Sterna*, including the first (Pl. X. fig. 3 a), thickly and coarsely granular throughout, except just upon the antero-lateral angle between the muscular groove and the stigma; the granules mostly transversely elongate.

*Tail* four and a half times the length of the carapace; upper surface of segments 1 to 3 granular, upper keels of segments 2 to 4 denticulate, the denticulation rather stronger

posteriorly; lateral surface granular, infero-lateral keels weak, weakly granular; inferior median keels obsolete on the first and almost so on the second, very weak on the third and fourth; lower surface of the first thickly granular like the last abdominal sternite, the second also similarly though less strongly granular below, the third and fourth still more weakly; the median keel on the fifth formed of a single row of denticles.

*Chelæ*.—Humerus with strong and coarsely granular crests, its upper surface rather smooth, with only a few small granules behind; upper crest on the brachium crenulate; hand furnished with a very strong, complete, and continuous finger-keel, vertical area external to this granular, the horizontal area internal to it nearly flat, flatter than in *O. capensis*, only finely granular, with scarcely a trace of supernumerary crests; the inner edge denticulate distally, thickly furnished with long setæ; hand-back equal to the width of the hand from the inner edge to the finger-keel, and half the length of the movable digit; lower surface of hand nearly smooth, only very finely granular.

Femora of *legs* finely granular externally; distal protarsal segment of first, second, and third pairs spiny on the external edge; lower surface of tarsi of third and fourth with two external spines in addition to the four on the external tarsal lobe; lobes longer than superior process.

*Pectines* with proximal angle of the shaft rectangular, 17 to 18 teeth.

*Measurements in millimetres*.—Total length 94; length of carapace 12, width 12; distance of eyes from anterior border 8; length of tail 54; length of hand-back 7.3, of movable digit 15; width of hand 8.5.

*Loc.* S. Africa (*Dr. Quain*). A couple of male examples.

According to Kraepelin's table this species, with its granular sterna and undivided cephalic sulcus, falls into the same category as *glabrifrons*, *pugnax*, and *prædo*. The granulation of the upper surface of the hand is rather finer than in male specimens of *glabrifrons* from Mashunaland and Nyasa, and the finger-keel is much stronger, while the inner keel is even less well developed. The carapace, too, is longer in *glabrifrons*, excelling the first and second caudal segments in length and also the fifth, as well as being longer than the upper surface of the hand. Moreover, the first and second abdominal sterna in *glabrifrons* are smooth.

From *pugnax*, *breviceps* differs in the finer granulation of the hand and the obsolescence of the internal keels, in the

smoother interocular area and shorter carapace as compared with the upper surface of the hand and with the first and second and fifth caudal segments, the relative length between these parts being about the same in *pugnax* as in *glabrifrons*, in having all the abdominal sterna thickly and uniformly granular, and the inferior median keels quite obsolete on the first caudal segment, instead of coarsely granular as in *pugnax*.

From *prædo*, which is unknown to me, *breviceps* seems to differ in much the same way that it does from *pugnax*, though possibly approaching it more nearly in the granulation of the hands.

*Synopsis of the Species contained in the Collection of the British Museum.*

- a.* Carapace furnished in front with a small but distinct triangular area, defined by two grooves which run obliquely inwards and backwards from the anterior edge and meet in a point in the middle line.
- a*<sup>1</sup>. Ocular tubercle only a little behind the middle of the carapace; interocular area not granular; lower surface of abdomen wrinkled in the male, but not granular . . . *carinatus*, Pet.
- b*<sup>1</sup>. Ocular tubercle far behind the middle of the carapace.
- a*<sup>2</sup>. Interocular area of carapace, lower surface of abdomen and of tail smooth, not granular . . . . . *pulli[di]pes*, C. Koch.
- b*<sup>2</sup>. Interocular area distinctly granular; sterna also granular (the last only very feebly so in ♀ of *granifrons*).
- a*<sup>3</sup>. Hand more convex and coarsely granular; keel on upper side of brachium and finger-keel of hand coarsely granular; last abdominal sternum of ♀ nearly smooth, of ♂ like the first caudal segment below, and some of the other sterna granular; paler in colour, crests on chelæ and carapace not heavily blackened; maxillary processes of first and second legs slightly infusate apically . . . . . *granifrons*, sp. n.
- b*<sup>3</sup>. Hand flatter and more finely granular; crest on brachium and hand strong, but almost smooth; fifth (and fourth in part) sternite in ♀ thickly granular, all of them in ♂ usually granular, principally behind; crest on chelæ and maxillary processes of first and second legs deeply black . . . . . *capensis* (Herbst).
- b.* Carapace not furnished with a distinct trian-

gular piece, the two grooves mentioned under *a* being obsolete.

- a*<sup>4</sup>. Ocular tubercle just behind the middle of the carapace; penultimate segment of the first three pairs of legs not spined externally; vesicle granular ..... *Wahlbergi* (Thor.).
- b*<sup>4</sup>. Ocular tubercle far behind the middle of the carapace; penultimate segment of legs of first three pairs spiny externally.
- a*<sup>5</sup>. Vesicle distinctly granular below (interocular area of carapace smooth, last abdominal sternite weakly granular in ♀)... *nitidiceps*, sp. n.
- b*<sup>5</sup>. Vesicle smooth below, at most granular quite at the base.
- a*<sup>6</sup>. (♀.) Tail short, 3 or 3½ times as long as the carapace, which is about as long as the first, second, and third caudal segments; hand of chela thicker, heavier, and less hairy; genital operculum not divided.
- a*<sup>7</sup>. Last abdominal sternite roughened, at least mesially, with irregular granulation; inferior surface of the first caudal segment with roughened keels.
- a*<sup>8</sup>. All the terga distinctly granular; interocular area finely so; last abdominal sternite granular throughout; colour darker, maxillæ of first and second legs deep black ..... *pugnax*, Thor., ♀.
- b*<sup>8</sup>. Terga and interocular area entirely smooth, or, at most, finely granular; last sternite mesially roughened; colour paler, maxillary processes not blackened ..... *glabrifrons*, Pet., ♀.
- b*<sup>7</sup>. Last abdominal sternite not granular, at most punctured; inferior keels of first caudal segment smooth (each marked with two punctures).
- a*<sup>9</sup>. Interocular area rugose inferior median keels of first caudal segment strong; colour entirely blackish ..... *calvus*, L. Koch, ♀.
- b*<sup>9</sup>. Interocular area polished, smooth; inferior median keels of first caudal segment weak; colour reddish brown ..... *latimanus*, C. Koch, ♀.
- b*<sup>6</sup>. (♂.) Tail from 4 to 4½ times the length of the carapace; hand much thinner and more hairy.
- a*<sup>10</sup>. Sterna of abdomen smooth, the last, at most, granular laterally.
- a*<sup>11</sup>. Tail narrow, compressed; denticles of upper keels on segments

- 2 to 4 much enlarged posteriorly; interocular area smooth; hands narrow, width less than length of hand-back; fingers very long, the movable more than twice the width of the hand ..... *austerus*, Karsch, ♂.
- b*<sup>11</sup>. Tail robust; denticles of upper keels hardly enlarged posteriorly; interocular area granular; hand stouter, its width much excelling the length of the hand-back, and more than half the length of the movable digit ..... *macer*, Thor., ♂.
- b*<sup>10</sup>. Sterna of abdomen rugose, the last granular; palpi and tail proportioned almost as in *macer*.
- a*<sup>12</sup>. All the abdominal sterna thickly granular; first and second segments of tail longer than carapace, which equals the fifth segment in length ..... *breviceps*, sp. n., ♂.
- b*<sup>12</sup>. Not all the sterna evenly granular, the anterior at most slightly wrinkled.
- a*<sup>13</sup>. Interocular area nearly or quite smooth; hand much more finely granular; anterior sterna smooth; inferior median keels on first caudal segment nearly obsolete ..... *glabrifrons*, Pet., ♂.
- b*<sup>13</sup>. Interocular area entirely granular; hand strongly crested and tubercular; first caudal segment strongly and granularly keeled below ..... *pugnax*, Thor., ♂.

## EXPLANATION OF PLATE X.

- Fig. 1. Opisthophthalmus granifrons*, sp. n. Carapace and chela, ♀.
- Fig. 1 a.* Ditto. Genital operculum and comb of one side.
- Fig. 1 b.* Ditto. Carapace and chela, ♂.
- Fig. 2. Opisthophthalmus nitidiceps*, sp. n. Carapace and chela, ♀.
- Fig. 2 a.* Ditto. Genital operculum and comb of one side.
- Fig. 3. Opisthophthalmus breviceps*, sp. n., ♂. Nat. size.
- Fig. 3 a.* Ditto. First abdominal sternum.
- Fig. 4. Opisthophthalmus austerus*, Karsch. Brachium and manus of chela, ♂.
- Fig. 5. Opisthophthalmus macer*, Thorell. Brachium and manus of chela, ♂.